IN THE SPECIFICATION

Please replace paragraphs [0018], [0022], [0027], [0030], [0031], [0035] and [0040] as follows:

[0018] ~~Figure 1~~ Figure 1A is a cross-sectional view of one embodiment of a chemical vapor deposition system 100 that is advantageously adapted to benefit from the present invention. The system 100 generally includes a chamber 102 coupled to a gas source 104. The chamber 102 has walls 106, a bottom 108 and a lid 110 that define a process volume 112. The walls 106 and bottom 108 are typically fabricated from a unitary block of aluminum. The chamber 102 contains a pumping ring 114 that couples the process volume 112 to an exhaust port 116. The exhaust port 116 is coupled to various pumping components (not shown) that exhaust and control the pressure within the process volume 112.

[0022] A support assembly 138 is centrally disposed within the chamber 102 beneath the showerhead 118. The support assembly 138 supports a substrate 140 during processing and includes a moveable shaft 142 and at least three substrate centering apparatuses 150 coupled thereto. The support assembly 138 generally is fabricated from aluminum, ceramic or a combination of aluminum and ceramic and typically includes a vacuum port (not shown) and at least one embedded heating element (not shown). The vacuum port is used to apply a vacuum between the substrate 140 and support assembly 138, for securing the substrate 140 to the substrate support assembly 138 during processing. The heating element, such as an electrode or resistive element embedded in the support assembly 138, is coupled to a power source (not shown) for heating the support assembly 138 and substrate 140 positioned thereon to a predetermined temperature. In one embodiment, the heating element maintains the substrate 140 at a uniform temperature of about 150 to 400 degrees. Alternatively, heating lamps or other heat sources may be utilized to heat the substrate 140. As illustrated in Figure 1B, which is a top view of the

support assembly 138 illustrated in ~~Figure 1~~ Figure 1A, at least three apertures 152 are formed in the support assembly 138 to allow the substrate centering apparatuses 150 to pass therethrough. In one embodiment, at least one of the apertures 152 is a slot 151 that extends to the circumference C of the support assembly 138.

[0027] Figures 2A is a sectional view of the substrate centering apparatus 150 illustrated in ~~Figure 1~~ Figure 1A. In one embodiment, the substrate centering apparatus 150 comprises a pivot 200, a roller 202, and a mounting flange 204. The pivot 200 comprises a lever 206 coupled to an arm 208. The lever 206 has a first end 210 and a second end 212, and is sized to extend through one of the apertures 152 in the substrate support assembly 138. The aperture 152 is large enough to allow a pre-defined radial displacement of the lever 206. The first end 210 of the lever 206 is adapted to protrude a distance above the surface of the substrate support assembly 138, *i.e.*, to contact an edge 141 of the substrate 140.

[0030] When the substrate support assembly 138 is in a raised position (*i.e.*, as illustrated in ~~Figures 1B~~ Figures 1A and 2A) to support a substrate 140 for processing, biasing member 230 biases the lever 206 portion of the pivot 200 radially inward, so that the first end 210 of the lever 206 contacts the edge 141 of the substrate 140 and moves the substrate 140 toward the center of the substrate support assembly 138. Once processing is completed, the substrate support assembly 138 moves downward, as illustrated in Figure 2B. As the substrate support assembly 138 approaches the bottom 108 of the chamber 100, the roller 202 contacts the chamber bottom 108 and is forced to roll radially inward. The movement of the roller 202 rotates the lever 206 radially outward (*e.g.*, about an axis substantially parallel to a plane of the substrate support assembly 138), as illustrated in phantom in ~~Figures 2~~ Figure 2A, so that the first end 210 of the lever 206 releases the edge 141 of the substrate 140, thereby creating a pocket or clearance for substrate handoff.

[0031] The operation of the substrate centering mechanism 150 illustrated in ~~Figures 2~~ Figures 2A-B allow the substrate 140 to be supported in a centered orientation throughout processing, thereby substantially preventing displacement of the substrate 140 during processing. Furthermore, the substrate centering mechanism 150 does not adversely affect magnetic fields in the chamber 100, the disturbance of which might also alter process results.

[0035] In one embodiment, the chamber 338 additionally includes a plurality of lift pins 340 and a lift plate 342. The lift pins 340 are disposed through apertures 344 in the substrate support assembly 318 and have first flared ends 346 adapted for contacting the substrate 322 and second ends 348 that protrude from the underside 328 of the substrate support assembly 318 when the lift pins 340 are in an un-actuated position. The lift plate 342 is positioned beneath and substantially parallel to the substrate support assembly 318 and is supported upon a shaft 360. The shaft 360 extends downward through an aperture 362 in the chamber bottom 336, and the shaft ~~260~~ 360 is coupled to an actuator 364 that drives the shaft 360 up and down to adjust the height of the lift plate 342. A bellows 366 disposed between the shaft 360 and the chamber bottom 336 provides a vacuum seal between the process volume and the atmosphere outside the chamber, while facilitating movement of the shaft 360 and lift plate 342. In one embodiment, the lift plate 342 comprises a substantially flat plate having at least two apertures 350 positioned substantially beneath the L-shaped pivots 302.

[0040] A spring ~~460~~ (not shown) biases the base 402 radially inward. As the substrate support assembly 418 moves downward, the roller 434 contacts the ramp 410 on the bottom 436 of the chamber 438, and the downward motion of the substrate support assembly 418 urges the roller 434 to roll down the ramp 410. As the roller 434 rolls down and outward along the ramp 410, the base 402 of the substrate centering apparatus 400 moves radially outward along the linear slide, spacing the lever 404 from the edge 426 of the substrate 428 to facilitate substrate transfer.